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# 225 MHz, High Performance HDMI Transmitter with ARC

## ADV7511

### FEATURES

#### General

- Incorporates HDMI 1.4 features
- Audio return channel (ARC)
- 3D video support
- 225 MHz supports 12-bit Deep Color operation in all video formats up to 1080p
- Supports gamut metadata packet transmission
- Integrated CEC buffer/controller—upgraded to HDMI 1.4
- Compatible with DVI 1.0 and HDCP 1.4
- Video/audio inputs accept logic levels from 1.8 V to 3.3 V

#### Digital video

- 3D video ready
- Programmable two-way color space converter
- Supports RGB, YCbCr, and DDR
- Supports ITU656-based embedded syncs
- Automatic input video format timing detection (CEA-861-E)

#### Digital audio

- Audio return channel (ARC) for HDMI 1.4 support
- Supports standard S/PDIF for stereo LPCM or compressed audio up to 192 kHz
- 8-channel uncompressed LPCM I<sup>2</sup>S audio up to 192 kHz

#### Special features for easy system design

- On-chip MPU with I<sup>2</sup>C master to perform HDCP operations and EDID reading operations
- 5 V tolerant I<sup>2</sup>C and HPD I/Os, no extra device needed
- No audio master clock needed for supporting S/PDIF and I<sup>2</sup>S
- On-chip MPU reports HDMI events through interrupts and registers

### APPLICATIONS

#### Home entertainment products

- Gaming consoles
- PCs
- DVD players and recorders
- Digital set top boxes
- A/V receivers

### FUNCTIONAL BLOCK DIAGRAM

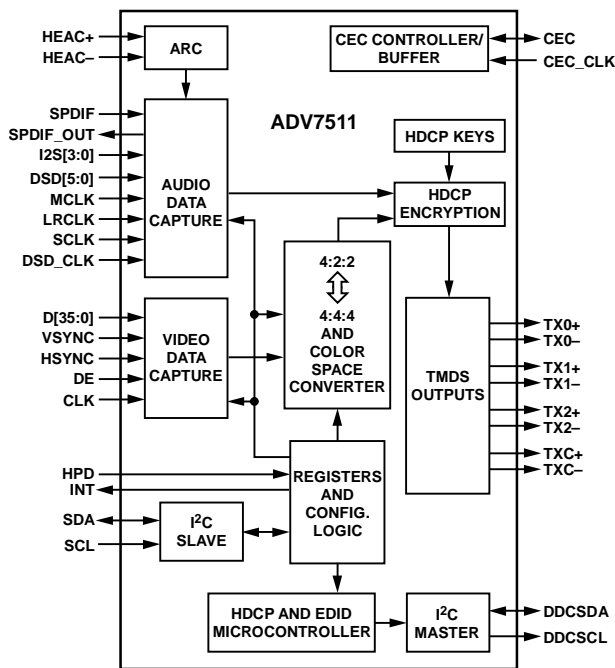


Figure 1.

### GENERAL DESCRIPTION

The ADV7511 is a 225 MHz High-Definition Multimedia Interface (HDMI™) transmitter, which is ideal for home entertainment products including DVD players/recorders, digital set top boxes, A/V receivers, gaming consoles, and PCs.

The digital video interface contains an HDMI 1.4- and a DVI 1.0-compatible transmitter, and supports all HDTV formats (including 1080p with 12-bit Deep Color). The ADV7511 supports the HDMI 1.4-specific features, HEAC (ARC), and 3D video. In addition to these features, the ADV7511 supports x.v.Color™, high bit rate audio, and programmable AVI InfoFrames. With the inclusion of HDCP, the ADV7511 allows the secure transmission of protected content as specified by the HDCP 1.4 protocol.

The ADV7511 supports both S/PDIF and 8-channel I<sup>2</sup>S audio. Its high fidelity 8-channel I<sup>2</sup>S can transmit either stereo or 7.1 surround audio up to 768 kHz. The S/PDIF can carry compressed audio including Dolby® Digital, DTS®, and THX®. Fabricated in an advanced CMOS process, the ADV7511 is provided in a 100-lead LQFP surface-mount plastic package and is specified over the 0°C to +70°C temperature range.

For more information about the ADV7511, email: [ATV\\_VideoTx\\_Apps@analog.com](mailto:ATV_VideoTx_Apps@analog.com).

#### Rev. Sp0

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## ADV7511

### NOTES

I<sup>2</sup>C refers to a communications protocol originally developed by Philips Semiconductors (now NXP Semiconductors).

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D08799-0-2/10(Sp0)



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